

Claims

1. A fuel injection system for an internal combustion engine, having a high-pressure side, which includes at least one high-pressure reservoir (16) in which fuel is stored at injection pressure and at least one injector (20), communicating with the high-pressure reservoir (16), for fuel injection to a cylinder of the engine, and having a low-pressure side which communicates at least indirectly with a fuel tank (12), characterized in that the high-pressure side has a communication (40) with the low-pressure side, which communication is controlled as a function of the fuel temperature in the high-pressure side and at a high fuel temperature is at least substantially closed, so that the high-pressure side is disconnected from the low-pressure side, and that is open at a low fuel temperature.
2. The fuel injection system as defined by claim 1, characterized in that the communication (40) of the high-pressure side with the low-pressure side is controlled by a valve device (42), which is influenced by the fuel temperature in the high-pressure side.
3. The fuel injection system as defined by claim 2, characterized in that the valve device (42) has a bimetal switching device, having at least two elements (44, 46) that comprise metals of different coefficients of thermal expansion.
4. The fuel injection system as defined by claim 3, characterized in that between the two elements (44, 46), at a low fuel temperature, a flow cross section (48) is opened; and that at a

high fuel temperature, the flow cross section (48) is at least substantially closed by the element (44) having the greater coefficient of thermal expansion.

5. The fuel injection system as defined by claim 4, characterized in that the elements (44, 46) are embodied in sleeve-like form; that the element (44) having the greater coefficient of thermal expansion is disposed inside the other element (46); that the inner element (44) is filled in its interior with fuel from the high-pressure side; and that the openable flow cross section is embodied as an annular conduit (48) between the elements (44, 46).

6. The fuel injection system as defined by claim 5, characterized in that a communication (50) with the high-pressure side and a communication (52) with the low-pressure side open into the annular conduit (48); and that the orifices of these communications (50; 52) are offset from one another in the direction of the longitudinal axis (45) of the elements (44, 46).

7. The fuel injection system as defined by one of claims 2 through 6, characterized in that the valve device (42) is disposed in a component in the high-pressure side, preferably in a housing part, a line (15; 18), or a connection element (60) of a line (15; 18).

8. The fuel injection system as defined by claim 5 or 6 and claim 7, characterized in that the outer element (46) is formed by the housing part, the line (15; 18), or the connection element (60).